PASSIFLORA CITRINA, A NEW SPECIES IN SECTION *XEROGONA* (PASSIFLORACEAE), FROM MESOAMERICA

The center of diversity for *Passiflora* L. subg. *Plectostemma* Masters sect. *Xerogona* (Raf.) Killip is in northern Central America, where at least six species occur in Guatemala alone. The section is notable in the genus *Passiflora* for its unusual capsular fruit. Killip (1922, 1924, 1927) described five species of this section from Central America and southern Mexico that had been confused with *P. rubra* L. or *P. capsularis* L. Newly described here is the yellow-flowered *P. citrina*, yet another member of this section that has been hidden under misapplication of the name *P. capsularis*.

Passiflora citrina MacDougal, sp. nov. TYPE: Honduras. Comayagua: El Carrizal, 14 km NW of Siguatepec, 900 m, 27 June 1971, *Molina & Molina 26057* (holotype, F; isotypes, EAP, NY, US). Figure 1.

Passiflora pubescens scandens; caulis sub5-angulatus; petioli eglandulosi; folia bilobata vel trilobata, lobis lateralibus acuminatis vel rotundis, lobo centrali obtuso vel obsoleto, marginibus integris, angula inter lobos laterales (30–)35–55(–70)°; bracteae nullae vel raro floribus bractea solitaria, 2–4 mm longa praeditis; flores aurei vel citrini vel viridiflavi, prope bases subcylindrico; coronae filamenta uniseriata, connata per maiorem longitudinem et perianthio adnata; androgynophorum 21–28 mm longum; ovarium dense pubescens; fructus fusiformis vel obovoideus, conspicue 6-carinatus; semina 6–7(8) sulcata.

Small vine, pubescent to hirsutellous throughout with 0.10–1.0(–1.2) mm ± erect, slightly antrorsely inclined or bent trichomes. Stems subpentangular, striate, densely pubescent with 0.2–0.8-mm bent trichomes. Stipules 4–7(–11) × 0.5–0.9 mm, linear-triangular, falcate, the apices not necrescent. Petioles 0.3–1.2(–2.0) cm long, eglandular. Laminas (2–)3–6.5(–9) × (1.5–)3–7(–9.5) cm at fertile nodes, widely obovate (obtriangular to widely oblong) in general outline, rounded to truncate (very shallowly cordate) at the base, entire, adaxially sometimes variegated along the main veins of the lateral lobes, evenly pubescent or often the trichomes in 2 distinct size classes and then the leaf scabrous and lightly hirsutellous, abaxially densely pubescent, 2(–3)-lobed 0.07–0.4(–0.6) the distance to the base, the lateral lobes acuminate to rounded, the central lobe (acute) obtuse to obsolete, the angle between the lateral lobes (30–)35–55(–70)°, the ratio of lateral to central lobe lengths (1.0–)1.2–2.0(–2.5), the ratio of laminar width to length (0.50–)0.6–0.9(–1.1); juvenile leaves variegated, deeply 2-lobed, the lobes acuminate, the angle between the lobes 80–100° or more; laminar nectaries absent. Posture of shoot apex ± straight. Prophyll of vegetative ramifying bud 1, narrowly lanceolate-triangular. Peduncles (solitary) geminate at the nodes, (0.3–)0.7–3.2(–4.3) cm long, uniflorous, ebracteate or rarely with one bract near the apex, 2–4 × 0.2–0.4 mm, linear to linear-triangular. Flowers yellow or bright yellow (to greenish yellow), sometimes drying with reddish brown speckles, inodorous, cylindrical in bud, the ventricose hypanthium 5–9 mm diam., sometimes with some of the trichomes borne on slightly raised bases; floral stipe 1.5–4 mm long; sepals 20–28(–34) × 2.5–5 mm, narrowly oblong-lanceolate or slightly oblanceolate, basally connate 2–6 mm, ecorniculate, strongly 3-veined, the veins raised and hirsutellous; petals 19–28 × 1.7–2.6 mm, narrowly oblong-lanceolate, basally adnate to the sepals; coronal filaments in 1 series, 9–14 mm long, erect, variably connate much of their length and adnate to the perianth, free distally 3–6 mm, pale yellow with yellow tips, not banded; operculum 1.0–2.1 mm long, membranous, only barely plicate near the erose apex; nectary 5(10)–ventricose, an additional annulus absent; limen (disk) ca. 2 mm diam., closely surrounding the base of androgynophore; staminal filaments connate 21–28 mm along the androgynophore, the free portions 4.5–6.0 mm long; anthers 4.4–6.0 mm long; ovary 2.8–4.2(–5.0) × 1.5–2.3 mm, obovoid-ellipsoid, densely pubescent, the trichomes mostly 0.2–0.5 mm; styles 5.0–6.8 mm total length; stigmas ca. 1.3 mm diam. Fruit (2.5–)3–4.3 × 1.2–2.3 cm, fusiform-ellipsoid or slightly obovoid, basally conical

or slightly attenuate, apically conical, acutely 6-carinate with thin 1–2-mm-high ridges, pubescent, reddish, dehiscent?, the stipe 1–8 mm long; arils unknown; nearly mature seeds 3.5–4 × 2.2–2.4 mm, slightly obcampylotropous with the chalazal beak strongly inclined toward the raphe, transversely sulcate with 6–7(–8) sulcae, the ridges continuous, smooth, and rather flat.

Habitat and distribution. *Passiflora citrina* is endemic to the pinehills country of central to western Honduras and adjacent eastern Guatemala. There it has been collected in moist (often open) pinewoods, *Pinus–Liquidambar* forest, or edges of moist mixed forest; it usually is climbing over grasses, tall herbs, and small shrubs in thickets.

Vernacular names. The name "moco" is recorded on an herbarium sheet from Chiquimula, Guatemala. "Calzoncillo," a vernacular name used for several of the bilobed passifloras in Mesoamerica, is recorded from Intibucá, Honduras.

Misapplied names. *Passiflora capsularis* auct., non L.: Killip (1936, 1938), in part; Standley & Williams (1961), in part.

The specific epithet refers to the color of the flowers.

Additional specimens examined. GUATEMALA. CHIQUIMULA: La Cumbre, old road to Quezaltepeque, 1,500 m, 28 Sep. 1971 (fl), *Molina & Molina 26821* (F); Volcán Quezaltepeque, 3–4 mi. NE of Quezaltepeque, 1,500–2,000 m, 8 Nov. 1939 (fl), *Steyermark 31508* (F). HONDURAS. COMAYAGUA: Temagua, 2,000 ft., 5 Aug. 1933 (fl), *Edwards P-640* (F); Trincheras, 20 km N of Siguatepeque, 4,500 ft., 29 July–10 Aug. 1951 (fl, fr), *Howard et al. 637* (MICH, NY); Trincheras on old road, ca. 14°39′N, 87°55′W, 1,050–1,100 m, 1 Nov. 1988, *MacDougal et al. 3048* (BM, MEXU, MO,TEFH); near Cerro Trincheras, km post 127.5 on road between Siguatepeque and Lago Yojoa, 980 m, 11 Nov. 1988, *MacDougal et al. 3469* (BM, MEXU,MO, US, TEFH); Barranco de Trincheras, 1,300 m, 29 Aug. 1955 (fl), *Molina 5826* (F); Barranco de Trincheras, 3 km a Montañuela, 1,200 m, 28 Mar. 1964 (fl), *Molina 13637* (F); 8 mi. W of Siguatepeque, 1,300 m, 7 Sep. 1975 (fl, fr), *Molina & Molina 31167* (F, MO); 24 km S of Lake Yojoa along road to Siguatepeque, 1,400 m, 26 Mar. 1976 (fl), *Pilz & Pilz 1572* (MO); Barranco de Trincheras, 18 km N of Siguatepeque, 1,200 m, 15 Apr. 1951 (fl), *Williams & Molina 17991* (F, US). COPÁN: 5 km al SO de Santa Rosa de Copán, 1,200 m, 29 Mar. 1963 (fl), *Molina 11705* (F, LL, NY, US); 5 km SO de Santa Rosa de Copán, 1,200 m, 29 Mar. 1963 (fl), *Molina 11655* (F, NY). INTIBUCÁ: Los Baños Públicos, alrededores de La Esperanza, 14 Mar. 1973 (fl, fr), *J. R. Martínez & Bejarano 110* (TEFH); Barranco Yamaranquilla, cerca de Yashse, 1,500 m, 12 Apr. 1956 (fl), *Molina 6510* (F, US); El Duraznillo, Cordillera, Opalaca, 2,000 m, 24 May 1964 (fl), *Molina & Molina 14086* (F). OCOTEPEQUE: 17 km NE of Nueva Ocotepeque, 13 Aug. 1970 (fl), *Harmon & Dwyer 3785* (MO); 41 km al NE de Nueva Ocotepeque, camino al San Pedro Sula, 1,490 m, 12 June 1985 (fl), *E. Martínez S. & O. Téllez 12932* (DUKE, MEXU); El Moral on Cordillera Merendón, 1,600 m, 27 Aug. 1968 (fl), *Molina 22263* (F, NY).

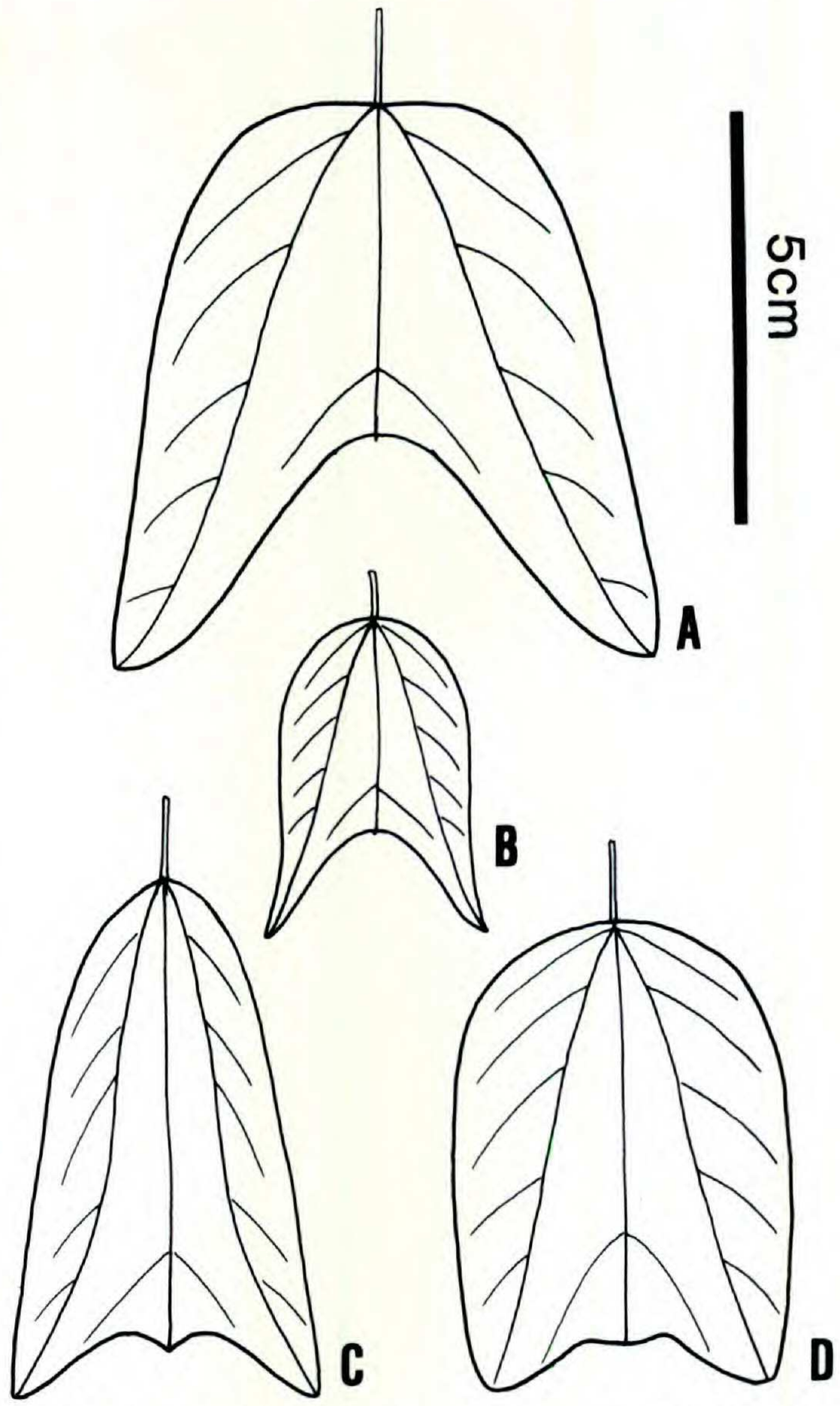

FIGURE 1. Variation in shape of leaves of *Passiflora citrina*.—A. *Molina 5826*.—B. *Molina & Molina 14086*.—C. *Molina & Molina 26057*.—D. *Molina & Molina 31167*.

Passiflora citrina may be referred to subg. *Plectostemma* sect. *Xerogona* because of the subpentangular stem, absence of petiolar or laminar nectaries, absence or near absence of floral bracts, elongate fruits with six keels, and seeds with a transversely grooved sclerotesta having a chalazal beak that is sharply angled towards the raphe. Mature fruits are unknown; however, a fruit that is probably of full size with nearly mature seeds is found on the isotype at NY. On a different collection, *Howard et al. 637*, the collector observed the fruits to be "red," but no fruits are included with the specimens. It is unknown whether the fruit

of this species is six-valvately dehiscent, as is usual in the other members of sect. *Xerogona*.

Passiflora citrina is remarkable for its elongate yellow flowers that are tubular in the basal half. The androgynophore is distinctively long and sets the species apart from all other members of sect. *Xerogona* except *P. sanguinolenta* Masters from southern Ecuador. Though very similar to *P. citrina*, *P. sanguinolenta* has nearly triangular stems, peduncles solitary at the nodes, pink to purplish red flowers that retain a diminutive second series of coronal filaments, and seeds with slightly rugulose ridges. Both species have slightly elongate flowers of similar morphology, flowers that have departed from the usual bowl-shaped hymenopteran-adapted groundplan in sect. *Xerogona* (Lindman, 1906) by reduction and fusion of the coronal filaments and partial connation and adnation of the perianth. In *P. citrina* the sepals are free from each other to within 2–6 mm of their bases, but they are submarginally adnate to the edges of the petals; the petals, in turn, are adnate to the connate portion of the coronal filaments. The net effect is a cylindrical structure formed by the adnation of the basal half of the perianth to the tubular and basally connate coronal filaments. The coronal filaments are free only in the distal 3–6 mm and are usually not visible on herbarium sheets without dissection. In dissected and living specimens, I could detect no trace of a second series of coronal filaments near the operculum.

The derived floral morphology of *P. sanguinolenta* is related to a shift in pollinators: the species is primarily hummingbird pollinated in its native habitat (C. Hofmann, pers. comm.). It is probable that *P. citrina* has also shifted away from pollination by hymenopterans.

The butterfly *Heliconius charitonius* was observed using *MacDougal et al. 3048* as a host plant.

Floral bracts are fundamentally absent in *P. citrina*, but in *Molina 6510* the peduncles occasionally bear a single bract at the apex.

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